FREQUENCY-SELECTIVE PHASE/DELAY CONTROL FOR AN AMPLIFIER

ABSTRACT OF THE DISCLOSURE

The insertion phase or delay of an amplifier can be controlled by comparing signals from the amplifier path with signals from a corresponding reference path without requiring the overall signal delay through the reference path to nominally match the overall signal delay through the amplifier path. Amplifier and reference path signals can be combined to form a combined signal whose power is detected using a narrow-band, frequency-selective power detector. For given phase and delay offsets between the amplifier and reference paths, cancellation (i.e., perfectly destructive interference) will occur at a series of different frequencies. By operating the power detector at one of these cancellation frequencies, a variable phase or delay adjuster in the amplifier path can be controlled to minimize the detected power level in order to achieve a desired level of insertion phase for the amplifier, without having to implement an expensive delay element in the reference path.